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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,995	03/26/2002	Norio Kashiwa	ZU-411	8981

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EXAMINER

LU, C CAIXIA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,995

Applicant(s)

KASHIWA ET AL.

Examiner

Caixia Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, Claims 1-9 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the claimed branch polymers differ from the branch polymer of Machida et al. (US 5,955,557). It appears the branch polymer of the reference have more branches such as methyl compared to the claimed branches polymer. However, Brant et al. (WO 94/07930) teaches that metallocenes which possess steric hindrance will yield vinyl terminated polymers which are relatively free of branches when compared to metallocenes which do not possess this hindrance (page 8, lines 31-34). Therefore, it would have been obvious for a skilled artisan to prepared a macromer with minimized branches by employ Mechida's process by using a more steric hindrance metallocene catalysts.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities:

- (i) page 1, line13 and page 4, line 4 respectively, the disclosure of "having as a side chain an olefin chain having..." is not in proper English; and
- (ii) page 2, line 14, the citation of "National Publication of International Paten No. 502303/1996" are not recognized in the art.

Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

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requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 8 is rejected under 35 U.S.C. 102(e) as being anticipated by Markel (US 6,444,773).

The instant claims are directed to a branched polyolefin which is derived from copolymerizing a olefin of C₂₋₂₀ and a vinyl-terminated macromer prepared from polymerizing ethylene and optional C₄₋₂₀ olefins, wherein the macromer have a weight-average molecular weight of 600 to 200,00 and less than 0.1 methyl branch per 1,000 carbon atoms as measured by ¹³C-NMR.

Markel's working examples, Examples 1-7, 12, 15, 16, 23, 24, and Example I teach macromers prepared by polymerizing ethylene in the presence of metallocene/MAO. As shown in Table 2, the content of trisubstituted carbon per 1000 carbon is less than 0.1 for those macromer, therefore, the methyl branch in the macromer is less than 0.1 per 1,000 carbon atoms because each methyl branch much contain one trisubstituted carbon. Markel's Examples I and II teaches a branch polymer

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prepared by copolymerizing ethylene, norbornene and vinyl-terminated ethylene macromer with average molecular weight of 23,587. Markel's teaching encompasses the instant claim.

6. Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Brant et al. (US 5,475,075).

Brant teaches a branched olefin polymer prepared from copolymerizing ethylene and a linear α -olefin having from 10-100 carbon atoms (col. 3, lines 47-54). When the branched copolymer is prepared from ethylene and, e.g., linear α -olefins of 47-100 carbon atoms, Brant's teaching encompasses the instant claims.

7. Claims 1-7 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Markel (US 6,444,773).

The instant claims are directed to a polymer with specified limitations including having a flow activation energy (E_a) that is larger than a value obtained by adding 5 KJ/mol to the E_a value of a conventional polymer.

Markel's teaching is relied upon as shown above. Although the prior art examples do not disclose the specified properties of the branch polymer, the polymers disclosed in the prior art have identical or substantially identical structures compared to applicants' branched polyolefins according to the disclosure of the specification. therefore, one of the ordinary skill in the art would have expected that the claimed limitations would be inherent in the prior art polymers.

Once a product appearing to be substantially identical is found and a 35 USC 102/103 rejection made, the burden of proof is shifted to the applicant to show an

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unobvious difference. In re Fitzgerald, 205 USPQ 594. In re Fessmann, 180 USPQ 324. Applicants have not met their burden to demonstrate an unobvious difference between the claimed product and the products of the prior art examples.

8. Claims 1-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brant et al. (US 5,475,075).

By the same token as shown in the rejection under 35 U.S.C. 102(e)/103(a) over Markel (US 6,444,773), Brant's branched olefin polymer as shown above are expected to inherently meet the limitations of the instant claims.

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Markel (US 6,444,773).

It is noted that Markel's working example does not demonstrate a macromer with the weight average molecular weight in the range of 600 to 3,500; however, Markel expressly teaches macromer with weight average molecular weight as low as 1500 can be prepared (Claim 1).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Brant's teaching to a branches olefin polymer wherein the branches of the polymer have weight average molecular weight at lower end of range of 1500 to 25,000 since such is conventional done in the art to optimize the processability of the polymer and in the absence of showing criticality and unexpected result.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (703) 306-3434. The examiner can normally be reached on 9:00 a.m. to 3:30 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1193.



Caixia Lu
Primary Examiner
Art Unit 1713

October 17, 2003